



ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

# MINIMUM REQUIREMENTS DECISION GUIDE WORKBOOK

*"...except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act..."*

-- The Wilderness Act of 1964

**Project Title:** North Fork Blackfoot Indigenous Fish Restoration

## MRDG Step 1: Determination

*Determine if Administrative Action is Necessary*

### Description of the Situation

*What is the situation that may prompt administrative action?*

The upper reaches of the North Fork of the Blackfoot River are currently populated with non-indigenous fish species. The North Fork Falls separates a currently healthy downstream population of indigenous fish species from an upstream population of non-indigenous fish species. The project area is located upstream of the North Fork Falls and encompasses approximately 70,722 acres within the Scapegoat Wilderness and spans the Forest boundary including portions of Seeley Lake and Lincoln Ranger Districts.

Recent field studies found *Oncorhynchus* hybrid trout (rainbow trout x westslope cutthroat trout x Yellowstone cutthroat trout) widespread in the drainage upstream of the North Fork Falls following decades of hatchery plants that began in the 1920s. These hybrid trout are poorly suited to high elevations streams and pose an upstream hybridization source to the down-valley stocks of native westslope cutthroat trout.

Currently, these high elevation waters upstream of the Falls appear to provide highly suitable habitat for native trout that is less susceptible to warming. Facilitating a condition that replaces hybrid rainbow trout with native westslope cutthroat trout would greatly benefit imperiled species native to the area.

For greater detail on the existing condition and purpose and need for the restoration project see Pierce et al (2017) and Clancey et al (2018). In addition a "Supplement to Minimum Requirements Analysis/Decision Guide (MRA/MRDG): Evaluating Proposals for Ecological Intervention in Wilderness" was written for the overall proposal (Hahn et al 2016). This report can be found within the Pierce et al (2017) on pages 71-93. These supplements are written to address ecological intervention proposals that commonly entail complex legal, scientific, and ethical questions that may be beyond the realm of a typical MRDG and better address the justification for this action.

### Options Outside of Wilderness

*Can action be taken outside of wilderness that adequately addresses the situation?*

☐ YES

☒ NO

**EXPLAIN & COMPLETE STEP 1 OF THE MRDG**

Explain:

The project area is located entirely within the Scapegoat Wilderness. The river above the North Fork Falls is a source of hybridization that threatens the genetic integrity of westslope cutthroat at multiple spatial scales in the watershed.

Genetic testing indicates project delays would exacerbate hybridization risk to down valley westslope cutthroat trout both inside and outside the wilderness and continued hybridization would diminish wilderness character. Any action taken outside the wilderness would not address this situation from the headwaters.

Climate change models projected through at least 2040 further suggest delays and inaction would fail to offset the ongoing and predicted regional contraction and loss of suitable habitat for westslope cutthroat trout. The potential upstream expansion of downstream rainbow trout also elevates the importance of a secure conservation population of westslope cutthroat trout upstream of the North Fork Falls.

### Criteria for Determining Necessity

*Is action necessary to meet any of the criteria below?*

#### A. Valid Existing Rights or Special Provisions of Wilderness Legislation

*Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that **requires** action? Cite law and section.*

☐ YES☒ NO

Explain:

There is no valid existing right or special provision that requires action.

## B. Requirements of Other Legislation

*Is action necessary to meet the requirements of other federal laws ? Cite law and section.*

☐ YES☒ NO

Explain:

Although the USFWS has determined that ESA listing is not warranted, WCT are a Forest Service Sensitive Species in Regions 1, 4, and 5. Sensitive species are managed under the authority of the National Forest Management Act (NFMA) and are administratively designated by the Regional Forester (FSM 2670.5; USFS 2004). FSM 2670.22 requires the maintenance of viable populations of native and desired non-native species and to avoid actions that may cause a species to become listed as threatened or endangered under ESA. The NFMA directs the Forest Service to "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives." [16 U.S.C. 1604(g)(3)(B)]. Providing ecological conditions to support diversity of native plant and animal species in the project area satisfies the statutory requirements. The Forest Service's focus for meeting the requirements of NFMA and its implementing regulations is on assessing habitat to provide for a diversity of species and their conservation needs so that listing is prevented under the Endangered Species Act. The conservation needs of WCT include maintaining habitat that is free from competing and hybridizing species and population expansion and protection. This project is compliant with the NFMA because it would help further these conservation needs.

FSM 2602-2 states that the U.S. Forest Service will maintain a partnership with State fish and wildlife agencies in habitat management efforts. It recognizes the State wildlife and fish agencies as responsible for the management of animals and the Forest Service as responsible for the management of habitat. It recognizes involvement of other Federal agencies, concerned conservation groups, and individuals in activities affecting wildlife and fish as appropriate.

Although there are other federal laws pertaining to the maintenance and restoration of native species, there are no laws specifically requiring the implementation of the proposed project within the North Fork Blackfoot.

Therefore, no specific action in wilderness is necessary to comply with the Endangered Species Act or other legislation.

## C. Wilderness Character

*Is action necessary to preserve one or more of the five qualities of wilderness character?*

UNTRAMMELED

☐ YES☒ NO

Explain:

This proposal seeks to lessen the effects of previous actions taken by land managers dating back to the 1920s. The project area was stocked with non-native fish species prior to Wilderness designation which altered ecological processes and degraded the natural quality of the Wilderness. This proposal would replace the hybridized non-native fish with native species in an effort to improve the natural processes in the project area and protect the natural processes downstream of the North Fork Falls. However, since this action is a manipulation of the existing population of trout species within the Wilderness it is in and of itself a trammeling action. It is not necessary to take this action to preserve the Untrammelled Quality of the Scapegoat Wilderness.

## UNDEVELOPED

☐ YES☒ NO

Explain:

There is no effect to the undeveloped character of the Scapegoat Wilderness that requires action from this proposal.

## NATURAL

☒ YES☐ NO

Explain:

The existing fish population within the project area consists of non-indigenous species and does not represent a naturally occurring aquatic population. The Wilderness Act directs managers to protect the land in its natural condition. This action would manipulate the ecosystem of the project area to be more consistent with surrounding ecosystems in the Scapegoat and replace non-indigenous species with indigenous Westslope Cutthroat Trout.

Since we will likely never know the with any degree of certainty what the aquatic ecosystem of the project area looked like before anthropogenic influences it seems reasonable to assume that by replacing non-native species with native species, while undoubtedly trammeling and altering the existing state of the wilderness, does move the area closer to a natural state than its current condition.

In addition, the population of non-indigenous species is upstream of currently healthy west slope cutthroat trout conservation populations below the North Fork Falls and poses a serious threat to the natural character of the Scapegoat Wilderness. If no action is taken it is very possible that the current population of indigenous westslope cutthroat below the North Fork Falls will be lost through hybridization.

Action must be taken to preserve the Natural Quality of Wilderness Character within the Scapegoat Wilderness.

## SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

☐ YES☒ NO

Explain:

This action is not necessary to preserve solitude or primitive or unconfined recreation.

## OTHER FEATURES OF VALUE

☐ YES☒ NO

Explain:

There are no effects to Other Features of Value that requires action on this proposal.

## Step 1 Determination

Is administrative action necessary in wilderness?

### Decision Criteria

- A. Existing Rights or Special Provisions
- B. Requirements of Other Legislation
- C. Wilderness Character
  - Untrammelled
  - Undeveloped
  - Natural
  - Outstanding Opportunities
  - Other Features of Value

### Summary Responses

Action IS NOT necessary to meet this criterion.

Action IS NOT necessary to meet this criterion.

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Action IS necessary to meet this criterion.

Action IS NOT necessary to meet this criterion.

Action IS NOT necessary to meet this criterion.

Is administrative action necessary in wilderness?

☒ YES

**EXPLAIN & PROCEED TO STEP 2 OF THE MRDG**

☐ NO

Explain:

In order to maintain healthy populations of Westslope Cutthroat trout in the North Fork of the Blackfoot River an ecological intervention is necessary.

If no action is taken it is very likely that the natural quality of the fishery in the Wilderness will decline as the introduced non-indigenous fish species spread and dilute the unique genetic qualities of the existing indigenous Westslope Cutthroat Trout.

This threat to the area's Natural Character can only be resolved through action within the designated boundary of the Scapegoat Wilderness.

## Project Title: North Fork Blackfoot Indigenous Fish Restoration

### MRDG Step 2

Determine the Minimum Activity

#### Other Direction

Is there "special provisions" language in legislation (or other Congressional direction) that explicitly **allows** consideration of a use otherwise prohibited by Section 4(c)?

#### AND/OR

Has the issue been addressed in agency policy, management plans, species recovery plans, or agreements with other agencies or partners?

☒ YES

#### DESCRIBE OTHER DIRECTION

☐ NO

#### Describe Other Direction:

This proposed project conforms to direction in the Policies and Guidelines for Fish and Wildlife Management in National Forest and Bureau of Land Management Wilderness (FSM 2323.32 #5). These guidelines indicate that: chemical treatment may be necessary to prepare waters for the reestablishment of indigenous fish species, consistent with approved wilderness management plans, to conserve or recover Federally listed threatened or endangered species, or to correct undesirable conditions resulting from human activity. Chemical treatments may be authorized by the Federal administering agency through application of the Minimum Resource Decision Process as outlined in Section E., General Policy.

#### Guidelines for Chemical Treatment

Use only registered pesticides according to label directions.

In selecting pesticides, give preference to those that will have the least impact on non target species and on the wilderness environment.

Schedule chemical treatments during periods of low human use, insofar as possible. Immediately dispose of fish removed in a manner agreed to by the Federal, State and private partners.

FSM 2320.4 c addresses the Forest Service stocking policy for fisheries in wilderness. The order of preference for stocking fish species is:

Federally listed threatened or endangered, indigenous species.

Indigenous species.

Threatened or endangered native species if species is likely to survive and spawn successfully.

Native species if species is likely to survive and spawn successfully.

Westslope cutthroat trout is an indigenous species that is not Federally listed as threatened or endangered.

In a Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout and Yellowstone Cutthroat Trout in Montana (July 2007) signatories agreed to the following goals and objectives:

## Goals

The management goals for cutthroat trout in Montana are to: 1) ensure the long-term, self sustaining persistence of each subspecies distributed across their historical ranges as identified in recent status reviews (Shepard et al. 2003; Shepard et al. 2005; May et al. 2003), maintain the genetic integrity and diversity of non-introgressed populations, as well as the diversity of life histories, represented by remaining cutthroat trout populations, and 3) protect the ecological, recreational, and economic values associated with each subspecies.

## Objectives

The following objectives will be required to attain the goals of this Agreement for cutthroat trout in Montana:

Objective 1. Maintain, secure, and/or enhance all cutthroat trout populations designated as conservation populations, especially the genetically pure components;

Objective 2. Continue to survey waters to locate additional cutthroat trout populations and determine their distribution, abundance, and genetic status.

Objective 3. Seek collaborative opportunities to restore and/or expand populations of each cutthroat trout subspecies into selected suitable habitats within their respective historical ranges.

Objective 4. Continue to monitor cutthroat trout distributions, genetic status, and abundance using a robust, range-wide, and statistically sound monitoring design.

Objective 5. Provide public outreach, technical information, inter-agency coordination, administrative assistance, and financial resources to meet the listed objectives and encourage conservation of cutthroat trout.

This action is also consistent with the approved Wilderness Management plan for the Snake

This action is also consistent with the approved wilderness management plan for the Scapegoat Wilderness. The Bob Marshall Wilderness Complex Fish and Wildlife Management Framework (1995) specifically states that "chemical treatment may be necessary to prepare water for the reestablishment of indigenous species to protect or recovery Federally listed Threatened and Endangered species or to correct undesirable conditions resulting from the influence of humans (e.g., the establishment of an exotic fish population that threatens a native gene pool). The action must be necessary to maintain wilderness values or to recover a Threatened or Endangered species."

The Framework also states :

"Fish stocking may be conducted by Montana Fish, Wildlife and Parks in coordination with the US Forest Service, using means appropriate for wilderness, for the following purposes: (a) to reestablish or maintain an indigenous species adversely affected by human influence; this involves maintaining genetic refuges in high quality aquatic habitats, and improving genetics of native, sensitive species like westslope cutthroat trout ("swamping" technique); these techniques are integral to conservation biology; (b) to perpetuate or recover a Threatened and Endangered species, and (c) to provide fishing recreation where appropriate. Fish stocking must be consistent with wilderness values."

The plan also acknowledges "stocking fish in waters in the BMWC has altered the natural community" and further directs managers to "look for opportunities to move towards more natural conditions where possible."

## Time Constraints

*What, if any, are the time constraints that may affect the action?*

Project effectiveness depends upon implementation of this plan during low water flows and when the area is accessible and free of snow. The area is typically inaccessible due to snow from November-May.

The project area typically sees its lowest water levels in late July, August, and early September. Pesticide application would not occur in July in order to minimize effects on non-target aquatic organisms.

The active disturbance caused by the project should be completed prior to September 15th in order to reduce displacement of Wilderness visitors during the busy Backcountry Hunting season.

These constraints essentially narrow the window for successful project implementation to a period between August 1st and Sept 15th.

Project preparation and planning may begin prior to August 1st.

Any approved helicopter flights should be done during mid week to reduce impacts to the recreating public.

Any approved area closures should be minimized to the shortest duration possible while also allowing for project success and public safety.

## Components of the Action

*What are the discrete components or phases of the action?*

Component X	<i>Example: Transportation of personnel to the project site</i>
Component 1	Transportation of deactivation station, chemicals, and sentinel fish into project site.
Component 2	Transportation and staging of other equipment, materials, and personnel into the project site
Component 3	Camp establishment
Component 4	Site preparation and area closure
Component 5	Rotenone Application in Streams
Component 6	Rotenone Application in Lakes
Component 7	Site Cleanup and restoration
Component 8	Demobilization of Deactivation Station and unused chemical

Component 9	Demobilization of equipment, supplies, and personnell
Component 10	Short term restocking effort
Component 11	Long term restocking effort

Refer to the [MRDG Instructions](#) regarding alternatives and the effects to each of the comparison criteria.

**Project Title:** North Fork Blackfoot Indigenous Fish Restoration

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## **MRDG Step 2: Alternatives**

**Alternative 1:** Minimum Mechanized Use and Stocking Area

### **Description of the Alternative**

*What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?*

This alternative proposes replacing existing non-native fish populations with native Westslope Cutthroat Trout (WCT) in 67 miles of stream and 3 lakes in the Scapegoat Wilderness.

With this alternative the project would be implemented using the least amount of mechanized equipment possible for a large scale chemical treatment of this type. This will minimize the impact of mechanized use and the number of prohibited actions within designated wilderness as well as the unwanted displacement of wildlife. However, due to the project's size and location, utilizing an increased number of pack strings will increase the duration of impacts to Wilderness visitors' opportunities for solitude and increase resource impacts associated with heavy stock use. This alternative also poses increased risks of project failure and safety hazards as further outlined below.

This alternative will limit the stocking of Westslope Cutthroat trout to waters that are currently fish bearing.

This project involves the removal of hybridized trout above the North Fork Falls (Falls) with a chemical formulation of rotenone (liquid and powdered). This piscicide will be delivered through a series of drip stations to approximately 67 miles of stream and 3 lakes above the Falls. As part of this process there will be an application of a detoxification agent (potassium permanganate) to neutralize the rotenone and protect downstream fish. The location of this deactivation station will be located upstream of the Falls (minimum ½ hour stream flow distance) and below the confluence of the East Fork. Implementation of this project would be during the summer and fall of 2021.

The project will be limited to one year of piscicide treatment in order to reduce cumulative impacts to Wilderness Character.

The second key phase of this project is the reintroduction of non-hybridized WCT. Multiple life stages of pure WCT would be reintroduced in three years stretched over a five year period. To increase the effective of the genetic swamping effort, stocking will commence in fall of 2021 and continue until at least 2025. Existing non-fish bearing stream segments will not be stocked and remain fishless.

**Management Decisions in this alternative:**

Use of chemicals (pesticides or herbicides)

Rotenone and Potassium Permanganate

Use of motorized equipment:

Battery powered pumps used in lake treatments

Gas powered generators used at deactivation station

Gas powered pumps for deactivation station

Battery powered electro fishing equipment.

Temporary or permanent facility development, structures, or installations:

Spike camps

Temporary Repeater

Habitat Alteration

Temporary beaver dam breaching and path clearing.

Area Closure

Closure of the project area during chemical treatment

Stay Order Exemption

Camps will remain in place for up to 24 days

**1. Transportation of deactivation station, chemicals, and sentinel fish into project site.**

MT Fish Wildlife and Parks (MFWP) policy requires 2 independent deactivation system for piscicide projects. This fail safe is critical to the success of this project and the protection of non-targeted fish species that inhabit the waters below the Falls. The smallest and simplest of these systems is a volumetric feeder that weighs about 80 pounds, plus at least 3 gas powered generators, such as a Honda 2000 or 2200. Alternative systems include larger and heavier feeders, with the same support system as the small feeder, and two 200 gallon water tanks that require a 2-inch gas-powered pump to fill them.

Support equipment needed to operate the power feeder and apply potassium permanganate include motorized pumps, gas-powered generators, and fuel. Support equipment necessary to operate the 200-gallon tank system includes primary and back-up 2-inch water pumps, hoses, irrigation supply boxes, a sump pump to mix potassium permanganate in the tanks and fuel.

The terrain that this equipment must be placed in is not located directly off of a trail. The recommended systems for deactivation are large, heavy, and awkward. Safely packing this material with stock will be challenging. Larger more effective systems would not be able to be packed in with stock. For these reasons the use of pack stock for these items will come with an increased risk for failure.

Hatchery Fish to be used as “sentinel fish” during project implementation will also be transported by at this time. Under this alternative these fish would be packed in using stock. There is an increased risk of mortality to these fish using pack stock instead rather than helicopters.

At least 270 gallons of rotenone will be transported. At least 2 times the amount of potassium permanganate estimated to be necessary to deactivate rotenone must be transported to the deactivation station. While the risk of spillage of this chemical is low, it is possible. Due to the trail network’s proximity to running water that is inhabited by non-target fish species, including the endangered Bull Trout, use of pack stock to transport these chemicals comes with increased risk of a catastrophic accident.

MFWP estimates it would take 4 weeks for 33 wranglers and 198 mules to pack in the required equipment, materials, and supplies outlined in this proposal. These materials would be mobilized in from both the North Fork Trailhead and the Indian Meadows Trailhead utilizing popular trail networks.

The Mainline Trail # 481 and the Hobnail Tom Trail #32 are both heavily used during the snow free months by both public parties and outfitted parties. This trail network is open to pack stock and is fairly heavily used but there are several exposed locations where passing with stock is difficult. Both trail networks also cross healthy fish bearing streams on numerous occasions.

Materials and supplies would be staged in areas with preexisting impacts, such as outfitter camps and USFS guard stations. Further mobilization throughout the project area would also be accomplished utilizing non-mechanized transportation options.

## **2. Transportation and staging of other equipment, materials, and personnel into the project site.**

Prior to project initiation pack strings would begin mobilization and staging of equipment and supplies not outlined in the previous action. This would occur concurrently with above action and be accomplished in the same estimated 4 week timeframe. Pack strings would carry Pesticide

would occur concurrently with above action and be accomplished in the same estimated 1-week timeframe. Pack strings would carry 1 person, application equipment, tools, gauges, inflatable rafts, pumps, and camping equipment.

Pack strings would utilize existing system trails in the Scapegoat Wilderness, including popular trails such the Mainline Tr. 481 and the Hobnail Tom Trail #32. Materials and supplies would be staged in areas with preexisting impacts, such as outfitter camps and USFS guard stations. Further mobilization throughout the project area would also be accomplished utilizing non-mechanized transportation options.

### **3. Camp establishment**

Implementation crews would utilize established dispersed campsites, designated Outfitter sites, and FS administrative sites to house crews and supplies. Webb Lake Guard Station, North Fork Guard Station, Carmichael Guard Station, and the Meadow Creek Outfitter Camp would serve as base camps. While smaller satellite camps would be located in previously impacted dispersed campsites throughout the project area. No new camps will be established and an effort will be made to limit the amount of impact to existing camps. Crews will use Leave No Trace practices for human waste disposal.

All camps will adhere to applicable food storage orders in the Helena – Lewis and Clark and Lolo National Forest as well as all regulations established the Bob Marshall Wilderness Complex pertaining to stock use, party size limits, weed free hay, fire restrictions, and area camping restrictions (Parker and Heart Lakes). An exemption will be required to the maximum allowable stay limit of 16 consecutive days.

#### **Management Decision:**

To allow or not allow for an exemption to the 16 day stay limit.

### **4. Site Preparation and area closure**

Prior to chemical application Project personnel will perform a variety of preparatory tasks.

Dye tests will be conducted on all fish bearing waters to determine travel time.

Crews will pre-position supplies from the large staging area to project sites.

Managers will establish communication plans which may involve placement of temporary repeaters to ensure crew safety and coordination. Repeater locations will be located on durable surfaces wherever possible to reduce resource damage.

Beaver Dam locations will be verified from previous reconnaissance efforts. Beaver Dams will be breached during project implementation in order to promote effective dispersal of rotenone.

When distributing supplies and conducting reconnaissance an emphasis will be placed upon minimizing the effect to the landscape, however, an action of this magnitude is sure to involve a short measurable impact to the area's natural quality.

Immediately before the project commences the Forest service will implement an area closure order for the project area. This closure is to ensure public safety and reduce complexities for implementation crews. While it will constitute a restriction to the public's opportunities to unconfined recreation it will mitigate impacts to the public's perception of solitude within the busy project area.

#### Management Decision:

To Implement or not implement an area closure for 7-10 days in the project area to provide for public safety.

#### **5. Rotenone Application in Streams**

Rotenone application will occur in approximately 67 miles of stream within the Scapegoat Wilderness.

This will be the most crew intensive part of the project and will involve the coordination of approximately 30 personnel. The primary method of application will be with drip systems which utilize plastic water jugs, buckets, and IV bags. The type of drip system used will be decided by project managers at site specific scale. These drip stations are augmented by application of rotenone with backpack sprayers in areas where adequate mixing of the water column does not occur. The application of this piscicide will kill the majority existing fish population. It is also likely to have a short term negative effect to invertebrate and amphibian populations within the project area. This is considered a short term negative effect to the Natural quality of the Scapegoat Wilderness.

During the application process crews will breach beaver dams located in the project area. Previous reconnaissance efforts discovered beaver dam complexes in Meadow Creek, Mineral Creek, and the East Fork of the North Fork Blackfoot River. Dams will be breached by hand crews utilizing Pulaskis and pick-mattocks. No beaver control will be conducted. It is expected that the majority of the active beaver dams will be rebuilt by beavers shortly after breaching activities. This will be a short term negative effect to the Natural Quality of the Scapegoat Wilderness.

This process will use 250-500 sentinel fish placed along treated streams to determine if lethal concentrations of piscicide are present throughout

the stream. The majority of these fish will be transported in from a fish hatchery. Some fish may be locally harvested with electro fishing packs. Project managers must treat the sentinel fish as an attractant and store them according to the Grizzly Bear Food Storage order.

Management Decisions:

To allow or not allow the use of a registered pesticide in the Scapegoat Wilderness.

To allow or not allow habitat alteration associated with Beaver Dam breaching.

To allow or not allow the use of battery powered electro fishing equipment.

**6. Rotenone Application in Lakes**

Rotenone will be applied to 3 lakes in the Scapegoat Wilderness. Parker, Meadow and Lower Twin Lake. Inflatable rubber rafts and battery powered pumps will be used to disperse the chemical throughout the water body. All lakes will be treated with an inflatable rafts that are propelled with oars in this alternative. By utilizing oars rather than a small outboard motor the chances of successfully removing the majority of fish from the larger Parker Lake is decreased. It is important for project success that each lake be done in its entirety in one day. This prevents unwanted survival of hybridized fish in pockets of untreated water.

In addition to the rubber boats, crews will use back pack sprayer along the margins of the lakes and in shallow wetlands. This will take an estimated 12 backpack sprayers.

Management Decision:

To allow or not allow the use of a registered pesticide in the Scapegoat Wilderness.

To allow or not allow the use of a battery powered pump in Meadow Lake, Parker Lake, and Lower Twin Lake.

**7. Site Clean Up and Restoration**

MFWP recommends that most fish carcasses be left to decompose in place. However, if dense large amounts of carcasses accumulate along the shores of the lakes they will have their air bladders punctured and be sunk into the lake to decompose naturally and contribute to nutrient cycling.

Immediately after the conclusion of piscicide application crews will begin gathering supplies back to staging area at Webb lake G.S.. Meadow Lake

Immediately after the conclusion of piscicide application crews will begin gathering supplies back to staging area at Webb Lake S.D., Meadow Lake Camp, Carmichael Cabin and North Fork Cabin. All equipment, flagging, portable radio repeaters, and excess supplies will be removed. There will be no permanent installations implemented in this project. All transportation in this phase of the project will be done with pack stock and backpacks.

Downed woody debris or vegetation that was moved or altered during project implementation will be reconfigured in order to minimize the visible disturbance to the landscape. Paths will be brushed, staging areas will have woody debris scattered in a natural pattern over them, stream banks will be naturalized and protected if necessary. These restoration efforts will restore affected areas to a condition similar to their previous state, thus minimizing visual impacts to the public.

#### **8. Demobilization of equipment, excess supplies, and personnel**

Demobilization of materials, supplies and personnel back out to the North Fork and Indian Meadows Trailheads will be accomplished by use of backpacks and pack stock. This process is likely to take an additional 2 weeks to remove all associated equipment with pack stock. Pack Strings will use the same network of trails that were used during project mobilization. There is an expected impact to visitors' opportunities for solitude, but the risk of unintentional chemical spilling is reduced, due to the majority of Rotenone and Potassium Permanganate having been used during project implementation.

#### **9. Demobilization of Deactivation Station**

Demobilization of the deactivation station above the Falls and associated equipment will be accomplished with pack stock. This will be done concurrently with the above action element removing other supplies.

#### **10. Short Term Restocking Efforts**

Due to the expected survival of a small percentage of the non-native fish population after removal efforts it will be important for project success to restock the project area immediately after the completion of removal efforts. More than 45,000 WCT hatchery fish, bred for genetic diversity and habitats similar to the project area, of multiple age classes will be stocked initially to reestablish a population of native trout and begin to genetically swamp out the remnant non-native fish genetics. All streams that are currently occupied by non-native trout will be restocked after chemical treatment. Parker, Meadow, and the Twin Lakes will also be stocked with WCT.

Restocking will be accomplished by use of pack stock in this alternative. Only areas that were previously known to be fish bearing will be restocked. Areas above barrier falls that are currently fishless will remain fishless.

Stocking has been successfully accomplished in wilderness areas for years utilizing pack stock, including locations in the Scapegoat Wilderness.

Packing in fish using pack strings for long distances may result in increased fish mortality. This situation is particularly of concern for older fish (Age Class 1 and 2). Selected stream stocking with Age-1 and Age-2 WCT will occur in areas that currently support the highest densities of fish and might have hybrids remaining after the rotenone application. This is an important consideration given that the population needs to grow and expand rapidly to have the best chance of swamping out any remaining hybrids, which is crucial aspect of project success.

MFWP estimates it would require 200 mule trips to pack in the estimated 45,000 fish into the project area for the initial, short term restocking effort. The restocking effort may work in concert with the demobilization of project equipment and supplies. By packing in fish and out supplies the effort may be significantly reduced. The timing of this restocking effort may overlap with the beginning of the busiest season for pack stock use in this area of the Scapegoat. The Backcountry Elk Rifle hunt begins on September 15<sup>th</sup>, however use of the trail network begins to increase in the weeks prior to this as hunters locate camp spots and scout the terrain. It is expected that there will be some loss of solitude for Wilderness visitors during this intensive packing effort.

#### **11.) Long term restocking efforts**

MFWP anticipates continuing stocking efforts in the project area in 2 out of the following 5 years (2022-2026). It is necessary to establish multiple age classes of fish in the project area to ensure that a healthy population of WCT become established. Fish will be stocked throughout the project area to ensure the maximum effectiveness of the genetic swamping effort. This restocking effort will be completed utilizing pack stock and foot traffic as outlined above. Approximately 36,000 age 0 fish requiring 23 mules, 2,600 age 1 fish requiring 17 mules, and 1,100 age 2 fish requiring 50 mules would be transported in requiring roughly 90 loaded mules each of the 2 years. These pack strings would leave from multiple trailheads and vary in size depending upon stocking needs in specific locations. Long term restocking efforts will be timed to minimize interference with the public. Factors such as water flow, availability of packers, and availability of hatchery stock will affect the exact time of restocking efforts, but it is likely that this action will occur in June or July. By limiting restocking efforts to weekdays the impact to the public will

## Component Activities

*How will each of the components of the action be performed under this alternative?*

Component of the Action		Activity for this Alternative
X	<i>Example: Transportation of personnel to the project site</i>	<i>Example: Personnel will travel by horseback</i>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	See Description Above
2	Transportation and staging of other equipment, materials, and personnel into the project site	See Description Above
3	Camp establishment	See Description Above
4	Site preparation and area closure	See Description Above
5	Rotenone Application in Streams	See Description Above
6	Rotenone Application in Lakes	See Description Above
7	Site Cleanup and restoration	See Description Above
8	Demobilization of Deactivation Station and unused chemical	See Description Above
9	Demobilization of equipment, supplies, and personnell	See Description Above
10	Short term restocking effort	See Description Above
11	Long term restocking effort	See Description Above



**Wilderness Character**

*What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?*

**UNTRAMMELED**

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Long term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Totals		2	2	NE
<b>Untrammeled Total Rating</b>		<b>0</b>		

Explain:

---

The application of a piscicide in the Wilderness constitutes a trammelling action.

However, it is significant to note that this action is in response to previous stocking of non- indigenous species in the area by mankind. This population threatens the currently healthy population of indigenous fish below the Falls.

By taking this trammelling action, the goal is to rectify more impactful actions taken by previous generations and protect currently healthy fish populations in the North Fork Blackfoot thereby mitigating the "imprint of man's work" as stated in the Wilderness Act.

# 5 Short-term Negative Effect: Treatment of the streams would have a short-term negative effect on native stream invertebrates. Research has shown that macroinvertebrate populations recover quickly when label directions are followed. Mitigation: None.

#6 Short-term Negative Effect: Treatment of the lakes would have a short-term negative effect on the lake zooplankton populations. Research has shown that zooplankton populations recover quickly when label directions are followed.  
Mitigation: None.

# 10 Long-term Positive Effect: Stocking of native WCT will establish a ecologically compatible species in the project area and protect downstream WCT populations from further genetic degradation due to the past actions of mankind.

#11 Long-term Positive Effect: The two years of additional stocking is necessary for establishment of stable population of WCT in the project area and to ensure remaining non-native genetics are sufficiently suppressed.

## UNDEVELOPED

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Long term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	1	NE
<b>Undeveloped Total Rating</b>		<b>-1</b>		

### Explain:

This alternative would not result in any significant change in the undeveloped character of the Scapegoat Wilderness.  
No new camps will be established and impacts at existing sites will be limited to the existing disturbed area in the sites.

#4 Short term Negative Effect: there would be short term impacts associated with staging supplies near application sites, minor path clearing for crew access along tributaries, and establishment of a temporary repeater site.  
These effects can be mitigated through clear direction and supervision of crews to minimize impacts and by using downed vegetation to cover over disturbed areas after implementation is complete.

## NATURAL

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Rotenone Application in Lakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Long Term Restocking Effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Totals		4	2	NE
<b>Natural Total Rating</b>		<b>2</b>		

Explain:

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When evaluating the impacts of this project on the Natural Character of this portion of the Scapegoat it is important to note that existing populations of fish are not naturally occurring. Prior to Wilderness designation this area was extensively stocked with fish species that were neither indigenous nor well suited to this area. Existing fish populations are noticeably less abundant than in neighboring drainages within the Wilderness, or indeed further downstream of the North Fork Falls within the same river system. While the removal of existing fish and establishment of indigenous species would be an intentional action of mankind and thereby not a naturally occurring process, it would serve to increase the naturalness of the area above the Falls long term and protect the currently healthy, naturally occurring populations of fish downstream of the Falls. In this alternative the project is being accomplished with minimum amount of mechanized use. This will limit the effectiveness of lake treatments by precluding the use of a boat motor. It may also come with an increased risk of catastrophic failure by not establishing as large of a deactivation station as could be accomplished with use of a helicopter for transportation to the detoxification site.

#5 & #6 Short Term Negative Effect and Long Term Positive Effect. Application of Rotenone in the Lakes and Streams within the project area would result in a short term negative effect on the naturally occurring populations of zooplankton and invertebrates. It is expected that these populations will recover quickly as has been observed in other projects similar to this one. Removal of the non-native fish species currently present in the project area will protect naturally occurring fish populations below the North Fork Falls. This will be a long term positive effect to the natural quality of the Scapegoat Wilderness.

#10 & #11 Positive effect. The establishment of a healthy, multi aged, population of WCT in the project area will ensure that remnant members of the non-native fish populations are sufficiently suppressed through genetic swamping. The multi staged restocking of WCT is a key step in this proposal and will result in an improved natural character both within the project area and within the Scapegoat Wilderness as a whole.

## SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Long term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	4	NE
<b>Solitude or Primitive &amp; Unconfined Recreation Total Rating</b>		<b>-4</b>		

Explain:

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This alternative utilizes pack stock for transportation of all project materials, equipment, and supplies. Due to the size of the project, the popularity of some of the trails, and the time of year that this project will be accomplished, there will be a negative short term impact to visitors' opportunities for solitude.

This effect can be mitigated by utilizing the trail network during periods of low use. This area typically sees its highest use during weekends and holidays. By avoiding packing during these time periods the effect to the public can be minimized.

#1 - Short Term Negative Effect. The transportation of the deactivation station and the required quantities of Rotenone and Potassium Permanganate would require a large number of pack strings over a period of 4 weeks to accomplish. The size and quantity of these materials will necessitate large numbers of pack strings and awkward loads that may displace other users from the trail tread. This would constitute a negative impact to visitors' opportunity for solitude in the area.

#4 – Short Term Negative Effect. An area closure would be implemented in this alternative. This would have a short term negative effect to the public's opportunity for unconfined recreation.

#8 - Short Term Negative Effect. The transportation of the deactivation station and the unused Rotenone and Potassium Permanganate would be accomplished with pack stock. The size and quantity of these materials will necessitate large numbers of pack strings and awkward loads that may displace other users from the trail tread. This would constitute a negative impact to visitors' opportunity for solitude in the area.

#10 - Short Term Negative Effect. The transportation of the fish needed for the short term restocking effort in fall of 2021 will require approximately 200 mules to transport roughly 45,000 hatchery fish. This action is likely to occur in the first weeks of September, which is the beginning of the busiest season in the project area - the backcountry rifle hunt. This large increase in pack stock traffic during the busiest season of the year in the Scapegoat will have a negative impact to visitors' opportunities for solitude.

## OTHER FEATURES OF VALUE

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Long Term Restocking Effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	0	NE
<b>Other Features of Value Total Rating</b>		<b>0</b>		

Explain:

There would be no effects to other features of value with this proposal.

## Summary Ratings for Alternative 1

Wilderness Character	
Untrammeled	0
Undeveloped	-1
Natural	2
Solitude or Primitive & Unconfined Recreation	-4
Other Features of Value	0
<b>Wilderness Character Summary Rating</b>	<b>-3</b>

**Project Title:** North Fork Blackfoot Indigenous Fish Restoration

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## **MRDG Step 2: Alternatives**

**Alternative 2:** Reduced Mechanized Use and Stocking Area

### **Description of the Alternative**

*What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?*

This alternative proposes replacing existing non-native fish populations with native Westslope Cutthroat Trout (WCT) in 67 miles of stream and 3 lakes in the Scapegoat Wilderness.

With this alternative the project would be implemented using the least amount of mechanized equipment possible, while still providing for mechanical use deemed critical to project success and safety. This alternative would minimize prohibited uses of mechanized equipment and transportation by utilizing pack stock. This alternative will also limit the stocking of (WCT) to waters that are currently fish bearing and be limited to one year of pesticide treatment in order to reduce impacts to Wilderness Character.

This project involves the removal of hybridized trout above the North Fork Falls (Falls) with a chemical formulation of rotenone (liquid and powdered). This piscicide will be delivered through a series of drip stations to approximately 67 miles of stream and 3 lakes above the Falls. As part of this process there will be an application of a detoxification agent (potassium permanganate) to neutralize the rotenone and protect downstream fish. The location of this detoxification station will be located upstream of the Falls (minimum ½ hour stream flow distance) and below the confluence of the East Fork. Implementation of this project would be during the summer and fall of 2021.

The second key phase of this project is the re-introduction of non-hybridized WCT. Multiple life stages of pure WCT would be reintroduced in three years stretched over a five year period. To increase the effectiveness of the genetic swamping effort, stocking will commence in fall of 2021 and continue until at least 2025. Existing non-fish bearing stream segments will not be stocked and remain fishless.

If the project is to be implemented with the least amount of risk possible to healthy downstream populations of trout, some helicopter use will be necessary to transport the deactivation station into a remote location above the Falls. Utilizing a helicopter will allow project managers to use a larger deactivation system which will increase the effectiveness of the detoxification of the piscicide before the river flows out of the project area. This will increase safety margins and decrease the odds of unintended fish mortality below the Falls. Treatment chemicals will also be transported aerially as packing this amount of chemicals in on pack strings would pose an increased risk of unintentional spillage and result in significant impacts to visitors on popular Wilderness trails caused by large pack strings carrying steel drums of chemicals in over a period of weeks. Hatchery Fish used as sentinel fish in the project may also be transported using a helicopter as landing areas for chemicals and deactivation site equipment coincide with locations needed for sentinel fish. This will reduce unwanted fish mortality and reduce impacts to visitors using popular trails such as the Mainline # 481 and the Hobnail Tom Trail #4.

**Management Decisions in this alternative:**

Use of chemicals (pesticides or herbicides)

Rotenone and Potassium Permanganate

Use of mechanical transport

Helicopter to transport deactivation site equipment, chemicals, and hatchery stock in 2021 - 2026 - total of 9 days and 59 flights.

Use of motorized equipment

Boat motor used to treat Parker Lake

Battery powered pumps used in lake treatments

Gas powered generators used at deactivation station

Gas powered pumps for deactivation station

Battery powered electro fishing equipment.

Temporary or permanent facility development, structures, or installations

Spike camps

Temporary Repeater

Deactivation Station

Habitat Alteration

Temporary beaver dam breaching and path clearing.

Area Closure

Closure of the project area during chemical treatment

### 16 day stay limit exemption

Camps will remain in place for up to 24 days

### **1. Transportation of deactivation station, chemicals, and sentinel fish into project site.**

MT Fish Wildlife and Parks (MFWP) policy requires 2 independent deactivation system for piscicide projects. This fail safe is critical to the success of this project and the protection of non-targeted fish species that inhabit the waters below the falls. The recommended systems for deactivation are large, heavy and awkward. The terrain that they must be placed in is not located directly off of a trail. For these reasons it is not deemed feasible to transport this equipment using non-mechanized means. A volumetric feeder, 200 gallon water tanks, generators, gas powered 2 inch water pumps, and large supplies of Potassium Permanganate would be flown into the designated detoxification site above the Falls prior to piscicide application. Materials flown into the deactivation site would be flown from the North Fork Trailhead on the Lolo National Forest.

Hatchery Fish to be used as “sentinel fish” during project implementation will also be transported by helicopter at this time. This will reduce the number of pack strings needed and significantly increase fish survival rates.

At least 270 gallons of Rotenone and Potassium Permanganate will also be aerially transported. While the risk of spillage of this chemical is low, it is possible. Due to the trail network’s proximity to running water that is inhabited by non-target fish species, including the endangered Bull Trout, aerial transportation is seen as the safest alternative to transport these materials into the project site. Flight lines for transportation would minimize the time of travel over water bodies, thereby limiting the risk of misapplication of registered pesticides.

MFWP estimates 20 flights over a period of 2 days to fly in these materials. By fitting this mobilization into 2 days of helicopter time we will reduce the duration of the impact to Wilderness visitors’ opportunity for solitude by reducing the number of pack stock that would need to use the trail network that is already very popular during the summer season.

Flights would take place during the middle of the work week in order to reduce impacts to Wilderness visitors.

### Management Decisions:

Mechanized Transport – to allow or not allow 2 days of helicopter use to mobilize equipment and supplies into site the project area.

Mechanized Tool Use – to allow or not allow the use of generators and gasoline powered water pumps to operate the deactivation station.

Mechanized Tool Use – to allow or not allow the use of generators and gasoline powered water pumps to operate the deceleration station.

## **2. Transportation and staging of other equipment, materials, and personnel into the project site.**

Prior to project initiation, pack strings would begin mobilization and staging of equipment and supplies not outlined in the previous component. Montana FWP staff estimate that it would take approximately 2 weeks for 33 packers and 198 mules to pack in the required amount of equipment and supplies. Pack strings would carry Pesticide application equipment, tools, gauges, inflatable rafts, pumps, and other gear listed fully in the FWP implementation plan.

Pack strings would utilize existing system trails in the Scapegoat Wilderness, including popular trails such the Mainline Trail #481 and the Hobnail Tom Trail #4. Materials and supplies would be staged in areas with preexisting impacts, such as outfitter camps and USFS guard stations. Further mobilization throughout the project area would also be accomplished utilizing non-mechanized transportation options.

## **3. Camp establishment**

Implementation crews would utilize established dispersed campsites, designated Outfitter sites, and FS administrative sites to house crews and supplies. Webb Lake Guard Station, North Fork Guard Station, Carmichael Guard Station, and the Meadow Creek Outfitter Camp would serve as base camps. While smaller satellite camps would be located in previously impacted dispersed campsites throughout the project area. No new camps will be established and an effort will be made to limit the amount of impact to existing camps. Crews will use Leave No Trace practices for human waste disposal.

All camps will adhere to applicable food storage orders in the Helena – Lewis and Clark and Lolo National Forest as well as all regulations established the Bob Marshall Wilderness Complex pertaining to stock use, party size limits, weed free hay, fire restrictions, and area camping restrictions (Parker and Heart Lakes). An exemption will be required to the maximum allowable stay limit of 16 consecutive days.

### **Management Decision:**

To allow or not allow for an exemption to the 16 day stay limit.

## **4. Site Preparation and area closure**

Prior to chemical application Project personnel will perform a variety of preparatory tasks.

Dye tests will be conducted on all fish bearing waters to determine travel time.

Crews will pre-position supplies from the large staging area to project sites.

Managers will establish communication plans which may involve placement of temporary repeaters to ensure crew safety and coordination. Repeater locations will be located on durable surfaces wherever possible to reduce resource damage.

Beaver Dam locations will be verified from previous reconnaissance efforts. Beaver Dams will be breached during project implementation in order to promote effective dispersal of rotenone.

When distributing supplies and conducting reconnaissance an emphasis will be placed upon minimizing the effect to the landscape, however, an action of this magnitude is sure to involve a short term measurable impact to the area's natural quality.

Immediately before the project commences the Forest service will implement an area closure order for the project area. This closure is to ensure public safety and reduce complexities for implementation crews. While it will constitute a restriction to the publics' opportunities to unconfined recreation it will mitigate impacts to the public's perception of solitude within the busy project area.

Management Decision:

To Implement or not implement an area closure for 7-10 days in the project area to provide for public safety.

**5. Rotenone Application in Streams**

Rotenone application will occur in approximately 67 miles of stream within the Scapegoat Wilderness.

This will be the most crew intensive part of the project and will involve the coordination of 30 personnel. The primary method of application will be with drip systems which utilize plastic water jugs, buckets, and IV bags. The type of drip system used will be decided by project managers at site specific scale. These drip stations are augmented by application of rotenone with backpack sprayers in areas where adequate mixing of the water column does not occur. The application of this piscicide will kill the majority existing fish population. It may also have a short term negative effect to invertebrate and amphibian populations within the project area. This is considered a short term negative effect to the Natural quality of the Scapegoat Wilderness.

During the application process crews will breach beaver dams located in the project area. Previous reconnaissance efforts discovered beaver dam

During the application process crews will breach beaver dams located in the project area. Previous reconnaissance efforts discovered beaver dam complexes in Meadow Creek, Mineral Creek, and the East Fork of the North Fork Blackfoot River. Dams will be breached by hand crews utilizing Pulaskis and pick-mattocks. No beaver control will be conducted. It is expected that the majority of the active beaver dams will be rebuilt by beavers shortly after breaching activities. This will be a short term negative effect to the Natural Quality of the Scapegoat Wilderness.

This process will use 250-500 sentinel fish placed along treated streams to determine if lethal concentrations of piscicide are present throughout the stream. The majority of these fish will be transported in from a fish hatchery. Some fish may be locally harvested with electro fishing packs. Project managers must treat the sentinel fish as an attractant and store them according to the Grizzly Bear Food Storage order.

#### Management Decisions:

To allow or not allow the use of a registered pesticide in the Scapegoat Wilderness.

To allow or not allow habitat alteration associated with Beaver Dam breaching.

To allow or not allow the use of battery powered electro fishing equipment.

#### **6. Rotenone Application in Lakes**

Rotenone will be applied to 3 lakes in the Scapegoat Wilderness. Parker, Meadow and Lower Twin Lake. Inflatable rubber rafts and battery powered pumps will be used to disperse the chemical throughout the water body. Due to the size and depth of Parker Lake FWP has deemed a small outboard motor as crucial to the success of this stage of the project. The gas powered motor and battery powered pumps will only be operated during the time that the project area is closed to the public. This will effectively mitigate any impacts that treatment will have to visitor's opportunities for solitude or primitive recreation.

Meadow and Lower Twin lakes will be treated with an inflatable raft that is propelled with oars and operate a small battery powered pump like in the larger Parker Lake.

In addition to the rubber boats, crews will use back pack sprayer along the margins of the lakes and in shallow wetlands. This will take an estimated 12 backpack sprayers.

It is important for project success that each lake be done in its entirety in one day. This prevents unwanted survival of hybridized fish in pockets of untreated water.

Management Decisions:

To allow or not allow the use of a registered pesticide in the Scapegoat Wilderness.

To allow or not allow the use of a gas powered motor in Parker Lake and a battery powered pump to be used in Parker, Meadow, and East Twin Lakes.

**7. Site Clean Up and Restoration**

MFWP recommends that most fish carcasses be left to decompose in place. However, if dense large amounts of carcasses accumulate along the shores of the lakes they will have their air bladders punctured and be sunk into the lake to decompose naturally and contribute to nutrient cycling.

Immediately after the conclusion of piscicide application crews will begin gathering supplies back to staging area at Webb lake G.S., Meadow Lake Camp, Carmichael Cabin and North Fork Cabin. All equipment, flagging, portable radio repeaters, and excess supplies will be removed. There be no permanent installations implemented in this project.

Downed woody debris or vegetation that was moved or altered during project implementation will be reconfigured in order to minimize the visible disturbance to the landscape. Paths will be brushed, staging areas will have woody debris scattered in a natural pattern over them, and stream banks will be naturalized and protected if necessary. These restoration efforts will restore affected areas to a condition similar to their previous state, thus minimizing visual impacts to the public.

**8. Demobilization of equipment, excess supplies, and personnel**

Demobilization of materials, supplies and personnel will be accomplished by use of backpacks and pack stock.

**9. Demobilization of Deactivation Station**

Demobilization of the deactivation station above the Falls and associated equipment will be accomplished with a small type 3 helicopter. Project

managers will be limited to 1 day of flights for this process in order to minimize impact. If deemed feasible project managers may combine the demobilization process with restocking activities in order to be efficient with helicopter use time and reduce impacts to the Wilderness Resource. Impact will be minimized by this activity if it is done during the middle of the work week, when Wilderness users are at a minimum.

Management Decision:

To allow or not allow the use of a helicopter for 1 day to remove the deactivation station and associated materials.

**10. Short Term Restocking Efforts**

Due to the expected survival of a small percentage of the non-native fish population after removal efforts it will be important for project success to restock the project area immediately after the completion of removal efforts. More than 45,000 WCT hatchery fish, bred for genetic diversity and habitats similar to the project area, of multiple age classes will be stocked initially to reestablish a population of native trout and begin to genetically swamp out the remnant non-native fish genetics.

Restocking will be accomplished both by pack stock and with use of small type 3 helicopter. Due to the remoteness of the site, large number of fish, timing constraints associated with the popular backcountry elk hunt, and the necessary travel time on pack mules initial stocking using aerial resources is seen as an important part of project success. By concentrating the initial restocking effort with helicopters, managers can reduce the number of affected visitor's opportunity for solitude.

Parker Lake, Meadow Lake, and Lower Twin Lake will be aerially stocked as well as the East Fork and North Fork of the Blackfoot river. In some areas, fish will be delivered to a staging site by helicopter and then disbursed from the staging area to the stream with pack stock and human transportation. Some areas closer to the trailhead may be directly stocked with pack strings. Only areas that were previously known to be fish bearing will be re stocked. Areas above barrier falls that are currently fishless will remain fishless.

MFWP estimates that it will take 3 days and approximately 40 flights to restock the area by the means outlined above. The impact to the public can be minimized by only flying during weekdays, when use is typically minimal.

Management Decision:

To allow or not allow the use of helicopters to restock Westslope Cutthroat Trout into the project area.

**11.) Long term restocking efforts**

MFWP anticipates continuing stocking efforts in the project area in 2 out of the following 5 years (2022-2026). It is necessary to establish multiple age classes of fish in the project area to ensure that a healthy population of WCT become established. This restocking effort will be completed utilizing a combination of pack strings and helicopter flights. Approximately 36,000 age 0 fish requiring 23 mules and 2,600 age 1 fish requiring 17 mules would be packed into the project site. Approximately 40 mules will be needed each of the two years to accomplish this action. These pack strings would leave from multiple trailheads and vary in size depending upon stocking needs in specific locations. The 1,100 age 2 fish would be transported using a small helicopter. This effort is expected to take 7 individual flights and can be accomplished in one day if weather permits. Long term restocking efforts will be timed to minimize interference with the public. Factors such as water flow, availability of packers, and availability of hatchery stock will affect the exact time of restocking efforts, but it is likely that this action will occur in June or July. By limiting restocking efforts to weekdays the impact to the public will be effectively minimized, but a negative effect to visitors' opportunity for Solitude and Primitive Recreation is likely.

## Component Activities

*How will each of the components of the action be performed under this alternative?*

Component of the Action		Activity for this Alternative
X	<i>Example: Transportation of personnel to the project site</i>	<i>Example: Personnel will travel by horseback</i>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	See Description Above
2	Transportation and staging of other equipment, materials, and personnel into the project site	See Description Above
3	Camp establishment	See Description Above
4	Site preparation and area closure	See Description Above
5	Rotenone Application in Streams	See Description Above
6	Rotenone Application in Lakes	See Description Above
7	Site Cleanup and restoration	See Description Above
8	Demobilization of Deactivation Station and unused chemical	See Description Above
9	Demobilization of equipment, supplies, and personnell	See Description Above
10	Short term restocking effort	See Description Above
11	Long term restocking effort	See Description Above



**Wilderness Character**

*What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?*

**UNTRAMMELED**

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Long term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Totals		2	2	NE
<b>Untrammeled Total Rating</b>		<b>0</b>		

Explain:

---

The application of a piscicide in the Wilderness constitutes a trammelling action.

However, it is significant to note that this action is in response to previous stocking of non- indigenous species in the area by mankind. This population threatens the currently healthy population of indigenous fish below the Falls.

By taking this trammelling action, the goal is to rectify more impactful actions taken by previous generations and protect currently healthy fish populations in the North Fork Blackfoot thereby mitigating the "imprint of man's work" as stated in the Wilderness Act.

# 5 Short-term Negative Effect: Treatment of the streams would have a short-term negative effect on native stream invertebrates. Research has shown that macroinvertebrate populations recover quickly when label directions are followed. Mitigation: None.

#6 Short-term Negative Effect: Treatment of the lakes would have a short-term negative effect on the lake zooplankton populations. Research has shown that zooplankton populations recover quickly when label directions are followed.

Mitigation: None.

# 10 Long-term Positive Effect: Stocking of native WCT will establish a ecologically compatible species in the project area and protect downstream WCT populations from further genetic degradation due to the past actions of mankind.

#11 Long-term Positive Effect: The two years of additional stocking is necessary for establishment of stable population of WCT in the project area and to ensure remaining non-native genetics are sufficiently suppressed.

## UNDEVELOPED

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Long term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	1	NE
<b>Undeveloped Total Rating</b>		<b>-1</b>		

### Explain:

This alternative would not result in any significant change in the undeveloped character of the Scapegoat Wilderness.  
No new camps will be established and impacts at existing sites will be limited to the existing disturbed area in the sites.

#4 Short term Negative Effect: there would be short term impacts associated with staging supplies near application sites, minor path clearing for crew access along tributaries, and establishment of a temporary repeater site.  
These effects can be mitigated through clear direction and supervision of crews to minimize impacts and by using downed vegetation to cover over disturbed areas after implementation is complete.

## NATURAL

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Rotenone Application in Lakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Long Term Restocking Effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Totals		4	2	NE
<b>Natural Total Rating</b>		<b>2</b>		

Explain:

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When evaluating the impacts of this project on the Natural Character of this portion of the Scapegoat it is important to note that existing populations of fish are not naturally occurring. Prior to Wilderness designation this area was extensively stocked with fish species that were neither indigenous nor well suited to this area. Existing fish populations are noticeably less abundant than in neighboring drainages within the Wilderness, or indeed further downstream of the North Fork Falls within the same river system. While the removal of existing fish and establishment of indigenous species would be an intentional action of mankind and thereby not a naturally occurring process, it would serve to increase the naturalness of the area above the Falls long term and protect the currently healthy, naturally occurring populations of fish downstream of the Falls.

#5 & #6 Short Term Negative Effect and Long Term Positive Effect. Application of Rotenone in the Lakes and Streams within the project area would result in a short term negative effect on the naturally occurring populations of zooplankton and invertebrates. It is expected that these populations will recover quickly as has been observed in other projects similar to this one. Removal of the non-native fish species currently present in the project area will protect naturally occurring fish populations below the North Fork Falls. This will be a long term positive effect to the natural quality of the Scapegoat Wilderness.

#10 & #11 Positive effect. The establishment of a healthy, multi aged, population of WCT in the project area will ensure that remnant members of the non-native fish populations are sufficiently suppressed through genetic swamping. The multi staged restocking of WCT is a key step in this proposal and will result in an improved natural character both within the project area and within the Scapegoat Wilderness as a whole.

## SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Long term restocking effort	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Totals		0	5	NE
<b>Solitude or Primitive &amp; Unconfined Recreation Total Rating</b>		<b>-5</b>		

Explain:

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This alternative utilizes a combination of helicopters and pack stock for transportation of project materials, equipment, supplies, and hatchery fish. Due to the size of the project, the popularity of some of the trails, and the time of year that this project will be accomplished, there will be a negative short term impact to visitors' opportunities for solitude.

This effect can be mitigated by transporting materials during periods of low use. This area typically sees its highest use during weekends and holidays. By avoiding packing or flying during these time periods the effect to the public can be minimized.

#1 - Short Term Negative Effect. The transportation of the de-activation station, sentinel fish, and the required quantities of Rotenone and Potassium Permanganate would take approximately two days of helicopter use. This would constitute a negative impact to visitors' opportunity for solitude in the area.

#4 – Short Term Negative Effect. An area closure would be implemented in this alternative. This would have a short term negative effect to the public's opportunity for unconfined recreation.

#8 - Short Term Negative Effect. The transportation of the de-activation station and the unused Rotenone and Potassium Permanganate would be accomplished with a helicopter and would take 1 day of flight time. This would constitute a negative impact to visitors' opportunity for solitude in the area.

#10 - Short Term Negative Effect. The transportation of the fish needed for the short term restocking effort in fall of 2021 will require approximately 40 flights over a period of 3 days. This will be a negative impact to visitors' opportunities for solitude in the area.

#11 Short Term Negative Effect. Transportaion of approximately 1,100 two year old fish would be accomplished using a helicopter. This will take 7 individual flights and can be accomplished in 1 day, weather permitting. This will be a negative impact to visitors' opportunities for solitude in

## OTHER FEATURES OF VALUE

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Long Term Restocking Effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	0	NE
<b>Other Features of Value Total Rating</b>		<b>0</b>		

Explain:

There would be no effects to other features of value with this proposal.

## Summary Ratings for Alternative 2

Wilderness Character	
Untrammeled	0
Undeveloped	-1
Natural	2
Solitude or Primitive & Unconfined Recreation	-5
Other Features of Value	0
<b>Wilderness Character Summary Rating</b>	<b>-4</b>

**Project Title:** North Fork Blackfoot Indigenous Fish Restoration

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## **MRDG Step 2: Alternatives**

**Alternative 3:** Full Mechanized Use and Stocking Area

### **Description of the Alternative**

*What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?*

This alternative proposes replacing existing non-native fish populations with native Westslope Cutthroat Trout (WCT) in 67 miles of stream and 3 lakes in the Scapegoat Wilderness.

With this alternative the project would be implemented using helicopters to transport all project materials, supplies, and equipment. This alternative would accomplish the project in shortest period of time possible and limit the duration of impact to the public, but would allow the most number of flights into and out of the Wilderness of any of the 3 alternatives. The tradeoff of duration of impact to number of prohibited uses and intensity of impact is at the forefront of this alternative. This alternative would also permit stocking of Westslope Cutthroat trout to waters that are currently not fish bearing. The North Fork upstream of Dobrota Creek is currently fishless. With this alternative fish would be stocked in this location to maximize the amount of available habitat for WCT.

Pesticide treatment would still be limited to one treatment in order to reduce impacts to Wilderness Character.

This project involves the removal of hybridized trout above the Falls with a chemical formulation of rotenone (liquid and powdered). This piscicide will be delivered through a series of drip stations to approximately 67 miles of stream and 3 lakes above the Falls. As part of this process there will be an application of a detoxification agent (potassium permanganate) to neutralize the rotenone and protect downstream fish. The location of this detoxification station will be located upstream of the Falls (minimum ½ hour stream flow distance) and below the confluence of the East Fork. Implementation of this project would be during the summer and fall of 2021.

The second key phase of this project is the reintroduction of non-hybridized WCT. Multiple life stages of pure WCT would be reintroduced in three years stretched over a five year period. To increase the effectiveness of the genetic swamping effort, stocking will commence in fall of 2021 and continue until at least 2025. In this proposal helicopter use would be allowed for all restocking efforts.

**Management Decisions in this alternative:**

Use of chemicals (pesticides or herbicides)

Rotenone and Potassium Permanganate

Use of mechanical transport

Helicopter to transport deactivation site equipment, chemicals, supplies, and hatchery stock –total 93 flights over of 15 days (2021-2025).

Use of motorized equipment

Boat motor used to treat Parker Lake

Battery powered pumps used in lake treatments

Gas powered generators used at deactivation station

Gas powered pumps for deactivation station

Battery powered electro fishing equipment.

Temporary or permanent facility development, structures, or installations

Spike camps

Temporary Repeater

De-activation Station

Habitat Alteration

Temporary beaver dam breaching and path clearing.

Area Closure

Closure of the project area during chemical treatment

16 day stay limit exemption

Camps will remain in place for up to 24 days

**1. Transportation of deactivation station, chemicals, and hatchery stock into project site.**

MT Fish Wildlife and Parks (MFWP) policy requires 2 independent deactivation system for piscicide projects. This fail safe is critical to the success of this project and the protection of non-targeted fish species that inhabit the waters below the falls. The recommended systems for deactivation are large, heavy and awkward. The terrain that they must be placed in is not located directly off of a trail. For these reasons it is not deemed feasible to transport this equipment using non-mechanized means. A volumetric feeder, 200 gallon water tanks, generators, gas powered 2 inch water pumps, and large supplies of Potassium Permanganate would be flown into the designated detoxification site above the Falls prior to piscicide application. Materials flown into the deactivation site would be flown from the North Fork Trailhead on the Lolo National Forest.

Hatchery Fish to be used as “sentinel fish” during project implementation will also be transported by helicopter at this time.

At least 270 gallons of rotenone will also be aerially transported. While the risk of spillage of this chemical is low, it is possible. Due to the trail network’s proximity to running water that is inhabited by non-target fish species, including the endangered Bull Trout, aerial transportation is seen as the minimum tool to safely transport these materials into the project site.

MFWP estimates 20 flights over a period of 2 days to fly in these materials. By fitting this mobilization into 2 days of helicopter time we will reduce the duration of the impact to Wilderness visitors’ opportunity for solitude by reducing the number of pack stock that would need to use the trail network that is already very popular during the summer season.

**Management Decisions:**

Mechanized Transport – to allow or not allow helicopter use to transport deactivation station, chemicals, and hatchery stock into the project area.

Mechanized Tool Use – to allow or not allow the use of generators and gasoline powered water pumps to operate the deactivation station.

**2. Transportation and staging of other equipment, materials, and personnel into the project site.**

Helicopters would transport Pesticide application equipment, tools, gauges, inflatable rafts, pumps, and camping equipment during the same

timeframe as the previous action component. This is estimated to take an additional 1 day to the 2 days outlined above for a total impact of 3 days to transport all project supplies, equipment, and materials into the project site. Materials and supplies would be staged in areas with preexisting impacts, such as outfitter camps and USFS guard stations. Pack stock and foot traffic would be used to transport personnel into the site and to move materials around the project area once materials are delivered to staging areas.

Management Decisions:

Mechanized Transport – to allow or not allow helicopter use to transport materials, supplies, and equipment into the project area.

**3. Camp establishment**

Implementation crews would utilize established dispersed campsites, designated Outfitter sites, and FS administrative sites to house crews and supplies. Webb Lake Guard Station, North Fork Guard Station, Carmichael Guard Station, and the Meadow Creek Outfitter Camp would serve as base camps. While smaller satellite camps would be located in previously impacted dispersed campsites throughout the project area. No new camps will be established and an effort will be made to limit the amount of impact to existing camps. Crews will use Leave No Trace practices for human waste disposal.

All camps will adhere to applicable food storage orders in the Helena – Lewis and Clark and Lolo National Forest as well as all regulations established the Bob Marshall Wilderness Complex pertaining to stock use, party size limits, weed free hay, fire restrictions, and area camping restrictions (Parker and Heart Lakes). An exemption will be required to the maximum allowable stay limit of 16 consecutive days.

Management Decision:

To allow or not allow for an exemption to the 16 day stay limit.

**4. Site Preparation and area closure**

Prior to chemical application Project personnel will perform a variety of preparatory tasks.

Dye tests will be conducted on all fish bearing waters to determine travel time.

Crews will pre-position supplies from the large staging area to project sites.

Managers will establish communication plans which may involve placement of temporary repeaters to ensure crew safety and coordination. Repeater locations will be located on durable surfaces wherever possible to reduce resource damage.

Beaver Dam locations will be verified from previous reconnaissance efforts. Beaver Dams will be breached during project implementation in order to promote effective dispersal of rotenone.

When distributing supplies and conducting reconnaissance an emphasis will be placed upon minimizing the effect to the landscape, however, an action of this magnitude is sure to involve a short measurable impact to the area's natural quality.

Immediately before the project commences the Forest service will implement an area closure order for the project area. This closure is to ensure public safety and reduce complexities for implementation crews. While it will constitute a restriction to the public's opportunities to unconfined recreation it will mitigate impacts to the public's perception of solitude within the busy project area.

Management Decision:

To Implement or not implement an area closure for 7-10 days in the project area to provide for public safety.

**5. Rotenone Application in Streams**

Rotenone application will occur in approximately 67 miles of stream within the Scapegoat Wilderness.

This will be the most crew intensive part of the project and will involve the coordination of 30 personnel. The primary method of application will be with drip systems which utilize plastic water jugs, buckets, and IV bags. The type of drip system used will be decided by project managers at site specific scale. These drip stations are augmented by application of rotenone with backpack sprayers in areas where adequate mixing of the water column does not occur. The application of this piscicide will kill the majority existing fish population. It may also have a short term negative effect to invertebrate and amphibian populations within the project area. This is considered a short term negative effect to the Natural quality of the Scapegoat Wilderness.

During the application process crews will breach beaver dams located in the project area. Previous reconnaissance efforts discovered beaver dam complexes in Meadow Creek, Mineral Creek, and the East Fork of the North Fork Blackfoot River. Dams will be breached by hand crews

utilizing Pulaskis and pick-mattocks. No beaver control will be conducted. It is expected that the majority of the active beaver dams will be rebuilt by beavers shortly after breaching activities. This will be a short term negative effect to the Natural Quality of the Scapegoat Wilderness.

This process will use 250-500 sentinel fish placed along treated streams to determine if lethal concentrations of piscicide are present throughout the stream. The majority of these fish will be transported in from a fish hatchery. Some fish may be locally harvested with electro fishing packs. Project managers must treat the sentinel fish as an attractant and store them according to the Grizzly Bear Food Storage order.

#### Management Decisions:

To allow or not allow the use of a registered pesticide in the Scapegoat Wilderness.

To allow or not allow habitat alteration associated with Beaver Dam breaching.

To allow or not allow the use of battery powered electro fishing equipment.

#### **6. Rotenone Application in Lakes**

Rotenone will be applied to 3 lakes in the Scapegoat Wilderness. Parker, Meadow and Lower Twin Lake. Inflatable rubber rafts and battery powered pumps will be used to disperse the chemical throughout the water body. Due to the size and depth of Parker Lake FWP has deemed a small outboard motor as crucial to the success of this stage of the project. The gas powered motor and battery powered pumps will only be operated during the time that the project area is closed to the public. This will effectively negate any impacts that treatment will have to visitors' opportunities for solitude or primitive recreation.

Meadow and Lower Twin lakes will be treated with an inflatable raft that is propelled with oars and operate a small battery powered pump like in the larger Parker Lake.

In addition to the rubber boats, crews will use back pack sprayer along the margins of the lakes and in shallow wetlands. This will take an estimated 12 backpack sprayers.

It is important for project success that each lake be done in its entirety in one day. This prevents unwanted survival of hybridized fish in pockets of untreated water.

Management Decision:

Management Decision:

To allow or not allow the use of a registered pesticide in the Scapegoat Wilderness.

To allow or not allow the use of a gas powered motor and a battery powered pump to be used in Parker Lake.

To allow or not allow the use of a battery powered pump in Meadow Lake, and Lower Twin Lake.

**7. Site Clean Up and Restoration**

MFWP recommends that most fish carcasses be left to decompose in place. However, if dense large amounts of carcasses accumulate along the shores of the lakes they will have their air bladders punctured and be sunk into the lake to decompose naturally and contribute to nutrient cycling.

Immediately after the conclusion of piscicide application crews will begin gathering supplies back to staging area at Webb lake G.S., Meadow Lake Camp, Carmichael Cabin and North Fork Cabin. All equipment, flagging, portable radio repeaters, and excess supplies will be removed. There be no permanent installations implemented in this project.

Downed woody debris or vegetation that was moved or altered during project implementation will be reconfigured in order to minimize the visible disturbance to the landscape. Paths will be brushed, staging areas will have woody debris scattered in a natural pattern over them, stream banks will be naturalized and protected if necessary. These restoration efforts will restore affected areas to a condition similar to their previous state, thus minimizing visual impacts to the public.

**8. Demobilization of equipment, excess supplies, and personnel**

Demobilization of materials and supplies and personnel will be accomplished utilizing a helicopter. It is estimated that it will take 1 day of flights to transport tools, gauges, rafts, application equipment, pumps, motors, excess supplies, and camping equipment back to the Indian Meadows

and North Fork Trailheads. If deemed feasible project managers may combine the demobilization process with restocking activities in order to be efficient with helicopter use time and reduce impacts to the Wilderness Resource. Flights will be timed to avoid flying during weekends and holidays which are known periods of high use.

Management Decision:

To allow or not allow the use of a helicopter for 1 day to remove project equipment, materials, and extra supplies.

**9. Demobilization of Deactivation Station**

Demobilization of Deactivation station above the Falls and associated equipment will be accomplished with a helicopter. Project managers will be limited to 1 day of flights for this process in order to minimize impact. If deemed feasible project managers may combine the demobilization process with restocking activities in order to be efficient with helicopter use time and reduce impacts to the Wilderness Resource. Flights will be timed to avoid flying during weekends and holidays which are known periods of high use.

Management Decision:

To allow or not allow the use of a helicopter for 1 day to remove the deactivation station and associated materials.

**10. Short Term Restocking Efforts**

Due to the expected survival of a small percentage of the non-native fish population after removal efforts it will be important for project success to restock the project area immediately after the completion of removal efforts. More than 45,000 WCT hatchery fish, bred for genetic diversity and habitats similar to the project area, of multiple age classes will be stocked initially to reestablish a population of native trout and begin to genetically swamp out the remnant non-native fish genetics.

Restocking will be accomplished both by pack stock and with use of helicopter. Due to the remoteness of the site, large number of fish and the necessary travel time on pack mules aerial stocking is seen as an important part of project success. Use of a helicopter will condense the necessary time to accomplish restocking in to a period of days rather than weeks on busy system trails. By concentrating restocking efforts with helicopters project proponents can reduce the number of affected visitor's opportunity for solitude.

Parker Lake, Meadow Lake, and Lower Twin Lake will be aerially stocked as well as the East Fork and North Fork of the Blackfoot river. Meadow Creek, East Fork Meadow Creek, Mineral Creek, East Fork Mineral Creek, Scotty Creek, Lost Pony Creek, and Cooney Creek may be stocked aerially if canopy cover allows. In some areas, fish will be delivered to a staging site by helicopter and then disbursed from the staging area to the stream with pack stock and human transportation. Some areas closer to the trailhead may be directly stocked with pack strings. The North Fork Blackfoot River upstream of Dobrota Creek, which is currently fishless, will be stocked during this effort to maximize the size of the available habitat for WCT within the project area.

MFWP estimates that it will take 3 days and approximately 40 flights to restock the area by the means outlined above.

Management Decision:

To allow or not allow the use of a helicopter for 3 days to restock Westslope Cutthroat Trout into the project area in 2021.

To allow or not allow currently fishless waters to be stocked with Westslope Cutthroat Trout.

**11.) Long term restocking efforts**

MFWP anticipates continuing stocking efforts in the project area in 2 out of the following 5 years (2021-2026). It is necessary to stock multiple age classes of fish in the project area to ensure that a healthy population of WCT become established.

MFWP estimates that 40 flights will be needed in each of the 2 subsequent years designated for restocking efforts. Flights will occur over a time span of 3 days in each of the 2 years. Flights will be timed to minimize public disturbance and displacement, but a negative effect to visitors' opportunity for Solitude and Primitive Recreation is likely.

Management Decision:

**Component Activities**

*How will each of the components of the action be performed under this alternative?*

Component of the Action		Activity for this Alternative
X	<i>Example: Transportation of personnel to the project site</i>	<i>Example: Personnel will travel by horseback</i>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	See Description Above
2	Transportation and staging of other equipment, materials, and personnel into the project site	See Description Above
3	Camp establishment	See Description Above
4	Site preparation and area closure	See Description Above
5	Rotenone Application in Streams	See Description Above
6	Rotenone Application in Lakes	See Description Above
7	Site Cleanup and restoration	See Description Above
8	Demobilization of Deactivation Station and unused chemical	See Description Above
9	Demobilization of equipment, supplies, and personnell	See Description Above
10	Short term restocking effort	See Description Above
11	Long term restocking effort	See Description Above

**Wilderness Character**

*What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?*

**UNTRAMMELED**

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Long term restocking effort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Totals		2	2	NE
<b>Untrammeled Total Rating</b>		<b>0</b>		

Explain:

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The application of a piscicide in the Wilderness constitutes a trammelling action.

However, it is significant to note that this action is in response to previous stocking of non- indigenous species in the area by mankind. This population threatens the currently healthy population of indigenous fish below the Falls.

By taking this trammelling action, the goal is to rectify more impactful actions taken by previous generations and protect currently healthy fish populations in the North Fork Blackfoot thereby mitigating the "imprint of man's work" as stated in the Wilderness Act.

# 5 Short-term Negative Effect: Treatment of the streams would have a short-term negative effect on native stream invertebrates. Research has shown that macroinvertebrate populations recover quickly when label directions are followed. Mitigation: None.

#6 Short-term Negative Effect: Treatment of the lakes would have a short-term negative effect on the lake zooplankton populations. Research has shown that zooplankton populations recover quickly when label directions are followed.  
Mitigation: None.

# 10 Long-term Positive Effect: Stocking of native WCT will establish a ecologically compatible species in the project area and protect downstream WCT populations from further genetic degradation due to the past actions of mankind.

#11 Long-term Positive Effect: The two years of additional stocking is necessary for establishment of stable population of WCT in the project area and to ensure remaining non-native genetics are sufficiently suppressed.

## UNDEVELOPED

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and sentinel fish into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Long term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	1	NE
<b>Undeveloped Total Rating</b>		<b>-1</b>		

Explain:

This alternative would not result in any significant change in the undeveloped character of the Scapegoat Wilderness.  
No new camps will be established and impacts at existing sites will be limited to the existing disturbed area in the sites.

#4 Short term Negative Effect: there would be short term impacts associated with staging supplies near application sites, minor path clearing for crew access along tributaries, and establishment of a temporary repeater site.  
These effects can be mitigated through clear direction and supervision of crews to minimize impacts and by using downed vegetation to cover over disturbed areas after implementation is complete.

## NATURAL

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Rotenone Application in Lakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Long Term Restocking Effort	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Totals		2	2	NE
<b>Natural Total Rating</b>		<b>0</b>		

Explain:

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When evaluating the impacts of this project on the Natural Character of this portion of the Scapegoat it is important to note that existing populations of fish are not naturally occurring. Prior to Wilderness designation this area was extensively stocked with fish species that were neither indigenous nor well suited to this area. Existing fish populations are noticeably less abundant than in neighboring drainages within the Wilderness, or indeed further downstream of the North Fork Falls within the same river system. While the removal of existing fish and establishment of indigenous species would be an intentional action of mankind and thereby not a naturally occurring process, it would serve to increase the naturalness of the area above the Falls long term and protect the currently healthy, naturally occurring populations of fish downstream of the Falls.

#5 & #6 Short Term Negative Effect and Long Term Positive Effect. Application of Rotenone in the Lakes and Streams within the project area would result in a short term negative effect on the naturally occurring populations of zooplankton and invertebrates. It is expected that these populations will recover quickly as has been observed in other projects similar to this one. Removal of the non-native fish species currently present in the project area will protect naturally occurring fish populations below the North Fork Falls. This will be a long term positive effect to the natural quality of the Scapegoat Wilderness.

#10 & #11 Long Term Positive and Negative Effects. The establishment of a healthy, multi aged, population of WCT in the project area will ensure that remnant members of the non-native fish populations are sufficiently suppressed through genetic swamping. The multi staged restocking of WCT is a key step in this proposal and will result in an improved natural character both within the project area and within the Scapegoat Wilderness as a whole. However, stocking the currently fishless waters of the North Fork Blackfoot above the upper falls will result in a long term negative effect to the Natural Character of the Wilderness. The scales of the effects would still tip in the favor of an overall improved natural condition, but by stocking currently fishless waters this effect is significantly lessened.

## SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Long term restocking effort	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Totals		0	7	NE
<b>Solitude or Primitive &amp; Unconfined Recreation Total Rating</b>		<b>-7</b>		

Explain:

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This alternative utilizes a combination of helicopters and pack stock for transportation of project materials, equipment, and supplies. Due to the size of the project, the popularity of some of the trails, and the time of year that this project will be accomplished, there will be a negative short term impact to visitor's opportunities for solitude.

This effect can be mitigated by transporting materials during periods of low use. This area typically sees its highest use during weekends and holidays. By avoiding packing or flying during these time periods the effect to the public can be minimized.

#1 - Short Term Negative Effect. The transportation of the de-activation station, sentinel fish, and the required quantities of Rotenone and Potassium Permanganate would take approximately two days of helicopter use. This would constitute a negative impact to visitor's opportunity for solitude in the area.

#2 Short Term Negative Effect. The transportation of pesticide application equipment, camping equipment, supplies, project materials, and other needed equipment would take approximately one day of helicopter use and would be accomplished in concert with Component #1 in this alternative. This would constitute a negative impact to visitor's opportunity for solitude in the area.

#4 – Short Term Negative Effect. An area closure would be implemented in this alternative. This would have a short term negative effect to the public's opportunity for unconfined recreation.

#8 - Short Term Negative Effect. The transportation of the de-activation station and the unused Rotenone and Potassium Permanganate would be accomplished with a helicopter and would take 1 day of flight time. This would constitute a negative impact to visitors' opportunity for solitude in the area.

#9 – Short Term Negative Effect. The transportation of application equipment, camping equipment, supplies, and project materials back to the Trailheads would take approximately one day of helicopter use and would be accomplished in concert with Component # 8 in this alternative. This would constitute a negative impact to visitor's opportunity for solitude in the area.

#10 - Short Term Negative Effect. The transportation of the fish needed for the short term restocking effort in fall of 2021 will require approximately 40 flights over a period of 3 days. This will be a negative impact to visitors' opportunities for solitude in the area.

#11- Short Term Negative Effect. The transportation of the fish needed for the long term restocking effort in 2 out of 4 years in 2022-2025 will require approximately 3 days of helicopter use in each of the two selected years. This will be a negative impact to visitors' opportunities for solitude in the area.

## OTHER FEATURES OF VALUE

Component Activity for this Alternative		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Transportation of deactivation station, chemicals, and hatchery stock into project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation and staging of other equipment, materials, and personnel into the project site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Camp establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site preparation and area closure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Rotenone Application in Streams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Rotenone Application in Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site Cleanup and restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Demobilization of Deactivation Station and unused chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Demobilization of equipment, supplies, and personnell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Short term restocking effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Long Term Restocking Effort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Totals		0	0	NE
<b>Other Features of Value Total Rating</b>		<b>0</b>		

Explain:

There would be no effects to other features of value with this proposal.

### Summary Ratings for Alternative 3

Wilderness Character	
Untrammeled	0
Undeveloped	-1
Natural	0
Solitude or Primitive & Unconfined Recreation	-7
Other Features of Value	0
<b>Wilderness Character Summary Rating</b>	<b>-8</b>

## **MRDG Step 2: Alternatives Not Analyzed**

### **Alternatives Not Analyzed**

*What alternatives were considered but not analyzed? Why were they not analyzed?*

An alternative that consisted of only removal efforts using piscicides without an effort to reestablish the fishery was considered but not analyzed. It is unknown with a full degree of certainty if the project area above the Falls was fishless prior to Human stocking or not. Regardless of a historic natural population, this alternative would alter the Natural character of the Scapegoat Wilderness by not reestablishing a fish population due to the presence of fish at the time of Wilderness Designation for the Scapegoat. Removal of all fish would unacceptably alter this baseline. This alternative was also deemed not feasible to accomplish the goal of removing non-native fish in the project area due to the size and complexity of the project. Without the restocking aspects of this project it is highly unlikely that chemical treatments would accomplish the goal of suppressing non-indigenous fish to a point that they no longer pose a threat to the healthy downstream population of WCT.

An alternative that would have relied upon mechanical treatment (electro fishing, fishing rods) and intensive planting of Westslope Cutthroat trout in the project area was considered. Professional assessment by area Fish Biologists determined that this alternative would not succeed in adequate suppression of the non-native fish genetics. The project area of 67 inhabited stream miles and 3 lakes offers too many areas of refugia for trout that would make mechanical harvesting with fishing rods and electro fishing equipment inefficient and likely ineffective in reaching the goal of near total removal of the hybridized population. This alternative was also deemed likely to fail because adequate numbers of fish for such a large scale stocking project would not be available through the hatchery system. Ultimately the scale of the project made this alternative infeasible.

An alternative that would have allowed the use of chainsaws for trail clearing along stream corridors and aerial application of Rotenone in beaver ponds and lakes was discussed but not analyzed. The effect of these prohibited uses in Wilderness were deemed unnecessary and could not reasonably be considered a minimum required action for this project.